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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. II. APRIL & MAY, 1843. No. 26.

Stated Meeting, April 7.

Present, thirty-five members.

Mr. DU PONCEAU, President, in the Chair.

Letters were received and read:—

From the General, *Chef d'Etat Major* of the Engineers of Mines of Russia, dated St. Petersburg, July, 1842, announcing the transmission of donations to the Society, by the order of Count Cancrine, Minister of Finances, &c. &c.:—

From the Secretary of the Royal Society of Sciences of Göttingen, dated 5th December, 1843, acknowledging the receipt of the Transactions and Proceedings of the Society:—and

From the Local Committee of the American Association of Geologists and Naturalists; informing the Society of the approaching meeting of the Association at Albany.

The following donations were announced:—

TO THE LIBRARY.

Annuaire Magnétique et Météorologique du Corps des Ingénieurs des Mines de Russie, ou Recueil d'Observations, &c., publiées par ordre de S. M. l'Empereur Nicolas I. sous les auspices de M. le Comte Cancrine, Chef du Corps, &c., par. A T. Kupffer: Année 1840. St. Petersburg, 1842. 4to.—*From H. E. Count Cancrine, &c. &c.*

Proceedings of the Royal Astronomical Society of London. Vol. V. No. 27. Jan. 1843. London. 8vo.—*From the Society.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. I. Nos. 22, 23. Jan. Feb. 1843. 8vo.—*From the Academy.*

The African Repository and Colonial Journal. March, 1843. Washington. 8vo.—*From the American Colonization Society.*

Schriften der in St. Petersburg gestifteten Russisch-Kaiserlichen Gesellschaft Für die Gesammte Mineralogie. 1r. Band. 11te. Abtheilung. St. Petersburg, 1842. 8vo.—*From Mr. Charles Cramer.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M.D. No. X. New Series. April, 1843.—*From the Editor.*

The Medical News and Library. Vol. I. No. 4. April, 1843. Philadelphia. 8vo.—*From Messrs. Lea & Blanchard.*

A New Universal Biography, &c. &c. By the Rev. John Platts. London, 1825, 1826. 5 vols. 8vo.—*From Mr. William S. Young.*

History of the Great Reformation of the Sixteenth Century in Germany, Switzerland, &c. By J. H. Merle d'Aubigné. New York, 1842. 3 vols. 8vo.—*From the same.*

The History of the Inquisition in Spain from the Time of its Establishment to the Reign of Ferdinand VII: Abridged and translated from the original works of D. Juan Antonio Llorente. Lond. 1827. 8vo.—*From the same.*

Life of Thomas M'Crie, D.D., Author of the Life of John Knox, &c. &c. By his Son, Rev. Thomas M'Crie. Philadelphia, 1842. 12mo.—*From the same.*

Sketches of the Higher Classes of Coloured Society in Philadelphia. Philadelphia, 1841. 12mo.—*From the same.*

Notice on the Beet Sugar. Translated from the works of Dubrunfaut, De Domballe, and others. Northampton, 1837. 12mo.—*From the same.*

A Map of North America, from the French of M. D'Anville; improved, with the back Settlements of Virginia and Course of the Ohio; with Geographical and Historical Remarks.—*From the Hon. C. J. Ingersoll.*

Dr. Hays invited the attention of the Society to the Reports of three papers recently read to the Geological Society of London relative to the Mastodontoid animals in the collection of Mr. Koch.

The first of these papers was by Dr. Grant. This distinguished naturalist, after a careful examination of Mr. Koch's collection, considers the genus Tetracaulodon, to be well founded. In his paper he points out the general structure and peculiarities of the three principal Mastodontoid genera,—Mastodon, Tetracaulodon, and Dinotherium,—and gives the dental formulæ of each of them. For the determination of those of the two first named genera, Dr. G. states that he has relied entirely on the splendid collection of Mr. Koch, which affords ample means for the purpose. The results of his investigations coincide precisely with those arrived at by the author of this communication, and which were presented to this Society, in a paper read twelve years ago. As each has obtained his results from the examination of an entirely different series of specimens, they mutually confirm each other.

The second paper is by Mr. Alexander Naysmith. This skilful anatomist has made a microscopic examination of the structure of the tusks of the Mastodon giganteum, Tetracaulodon Godmanii, T. Kochii, T. tapiroides, and of the Missourium; and he states that the minute structure of all these five animals exhibit considerable varieties. The peculiarities in the tusk of the Missourium, he adds, certainly indicate a distinct species. These results cannot but be regarded as extremely interesting, though it must be admitted, Dr. H. remarked, that the actual value of these characters was yet to be determined. Dr. H. reminded the Society of what he had stated on a former occasion, that each tusk of the Missourium was in three pieces, and that it was far from certain that they all had belonged to the same animal, and therefore he must now express his regret that Mr. N. had not examined a section of each of the three pieces, or at all events had not stated in which piece the section he examined was made, as the middle piece Dr. H. thought had been inserted, and that to this was due the great length of the tusks and their peculiar curve.

The third paper was by Mr. Koch, and contains the results of this gentleman's researches, which in his opinion fully prove the Tetracaulodon to be a distinct genus.

Dr. H. stated, that whilst he still conceives, as he has done from the first, that the balance of evidence was in favour of the correctness of that opinion, still it was due to truth and science, that false weights should not be allowed a place in the scales, and therefore he felt it his duty to correct one or two of the statements made by Mr. Koch, and which are founded on careless observation.

Mr. K. asserts that the Mastodon in the Philadelphia Museum is a male, according to the construction and size of the pelvis, and the magnitude of the tusks in the upper jaw; yet there are no traces of tusks in the lower jaw: and the specimen at Baltimore, which is considered to be indisputably a male, is also destitute of inferior tusks.

Now, Dr. H. remarked, if even we were sufficiently well acquainted with the osteology of the Mastodon to distinguish the male from the female pelvis, which he thought we were not, still Mr. Koch's inferences would be unfounded, because, 1st. the pelvis and the lower jaw in the Baltimore skeleton belonged to different individuals: and 2d. the lower jaw in the Philadelphia one was of *wood*, modelled after the former, whilst the pelvis belonged to a third individual.

Dr. H. then gave the following brief history of these skeletons.

That in the Philadelphia Museum, which is the most perfect, was disinterred by Mr. C. W. Peale, in 1801, on the farm of John Masten, near Newburgh, New York. The Baltimore skeleton was obtained by Mr. Peale, the same year, from a morass belonging to Captain Barber, eleven miles distant from Masten's. Both these skeletons were incomplete, and many of their deficiencies were supplied by artificial imitations of corresponding parts in each other, or of counterparts in themselves. The lower jaw, however, belonging to the skeleton found at Masten's, had been broken to pieces in the attempt to get it out, and the teeth and a few fragments only were preserved; and no lower jaw was discovered among the bones found at Captain Barber's. To complete this part in the Baltimore skeleton, a lower jaw was taken which had been dug up on the farm of Peter Millspaw; whilst for the same object in the Philadelphia skeleton, a model of this same jaw was made, and the teeth of the individual which had been preserved were inserted therein. The tusks found at Masten's were too friable to support their own weight; models of them were therefore made in wood, which were used in the construction of the skeleton.

The upper part of the head was not discovered, and this part was modelled after the cranium of the Elephant, an incorrect model, as has since been ascertained.

Prof. Bache communicated an extract of a letter from M. Quetelet of Brussels, stating that hourly meteorological observations were made at some fifty stations in Europe at the periods of the equinoxes and solstices, the observers corresponding with the Academy of Sciences of Brussels. M. Quetelet expresses the wish that the American Philosophical Society should become the centre of a similar union for the new world, and urges that the attention of men of science should be called to the subject; he also enforces the necessity for conformity to the plan laid down in the circular of the Academy:—

Also a letter from Mr. James C. Reid, of the Erie Academy; containing the directions of the paths of thirty-eight meteors, or "shooting stars," observed by him on the 10th of August last, between 10 and 11 P. M.

Prof. Bache also stated, that observations are making at Cambridge, Mass., under the superintendence of Prof. Peirce, and by an appropriation from the American Academy, for obtaining the directions of the paths of meteors. The observations are made on the first clear night of each week from dark until 11 o'clock, and from 3 A. M. until daylight. The particulars recorded are the right ascension and declination of the points of first and last appearance of the meteor, the magnitude, and the general circumstances of the motion.

Professor Rogers gave illustrations, in addition to those presented by him at a former meeting, to show that the lines of simultaneous movement in the earthquake of the 4th of January last were nearly meridional, or from a little east of north to a little west of south; the wave passing in succession from west to east.

Prof. R. discussed the additional observations which he had procured in support of his conclusions; and comparing the action of this earthquake with that of others on record, remarked upon its coincidence with that going to produce great anticlinal flexures. He stated that he was engaged in examining the phenomena and motion of the earthquake of February the 8th; the focal area of which appeared to be an elongated ellipse.

Mr. Walker made an oral communication of the observations made upon the Comet by Prof. Kendall and himself, first seen at the High School Observatory on the 11th of March, and of the elements of its orbit, as they had computed them.

The ephemeris calculated from their elements gives an error of less than two minutes of space in the centre of the nebulous appearance corresponding to the nucleus of comets generally. Mr. Walker also noticed the observations and computations of Professor Loomis, Professor Peirce, and others, and indicated the special difficulties presented by the computation of the orbit of this comet, which, with ordinary measurements, must render the computed elements very doubtful. Mr. W. also remarked the general correspondence of its elements with those of the comet of 1689.

Professor Bache informed the Society that he had received a letter from the Hon. James M. Porter, Secretary of War, through the bureau of Topographical Engineers, making an allowance for the continuance of the observations at the magnetic observatory. In consequence of this liberal and well-timed supply of means, he said, the series of observations was resumed on the first of the present month.

The Society thereupon unanimously adopted a resolution, tendering its thanks to the Hon. James M. Porter, Secretary of War, for his judicious appropriation of means for the continued prosecution of the magnetic observations heretofore conducted under the auspices of the Society: and

The Committee of the Magnetic Observatory was instructed to communicate the resolution to the Hon. Secretary.

The Committee on the Centennial Celebration reported progress, and announced the measures which they had deemed advisable to take for furthering the objects of their appointment.

Mr. Kane, Reporter, laid upon the table the 25th No. Vol. II. of the Proceedings, for January, February, and March, 1843.

Stated Meeting, April 21.

Present, thirty-eight members.

Dr. Patterson, Vice-President, in the Chair.

Mr. Charles B. Trego, a member elect, was presented, subscribed the laws, and took his seat.

Letters were read:—

From the Secretary of the Massachusetts Historical Society, dated 11th April, 1843, inviting the Society's presence at the second centennial celebration of the Confederation of the New England Colonies on the 29th of May next:—and